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ABSTRACT

A select portion of the educational management literature is reviewed in the three sections of this paper. The first section discusses literature concerning the amount of time students spend in school. Specific attention is given to the quantity of schooling, the allocation of school time, student engagement in academic tasks, and the relationship of these three variables to learning. The second section describes the kinds of activities elementary school teachers typically conduct in their classrooms. The literature reviewed focuses on the format of lessons (especially the recitation format), the relationship between activity format and behavior, characteristics of lesson formats, the signal system of lessons, pacing of lessons, the structure of the school day, and activity segments. The final section examines two of the major management issues faced by classroom teachers: the management of transitions between activities and the development and implementation of teaching plans. Subtopics discussed in the final section include reducing the length and chaos of transitions through advance preparation, establishment of clear boundaries, use of routines, movement management, and preactive planning. (RH)

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What's Happening in Elementary School Classrooms?

Research on Time Use, Classroom Operations, and Activity Management

Rhonda P. Ross

PS 014567

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WHAT'S HAPPENING IN ELEMENTARY SCHOOL CLASSROOMS? RESEARCH ON TIME USE, CLASSROOM OPERATIONS, AND ACTIVITY MANAGEMENT

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FOREWORD

The Educational Resources Information Center/Clearinghouse on Elementary and Early Childhood Education (ERIC/EECE) is part of a network of 16 specialized clearinghouses funded by the National Institute of Education to provide information about current research and developments in the field of education. Each clearinghouse focuses on a specific area of education--ERIC/EECE is responsible for acquiring, abstracting, and indexing recent information on the social, psychological, physical, educational, and cultural development of children from the prenatal period through early adolescence. Theoretical and practical issues related to staff development, administration, curriculum, and parent/community factors affecting programs for children of this age group are also within the scope of the clearinghouse.

Each month, documents including research studies, conference proceedings, curriculum guides, program descriptions and evaluations, and other publications not readily available from other sources are abstracted and indexed in the pages of Resources in Education (RIE). Through the ERIC Document Reproduction Service, the ERIC system then makes available microfiche and paper copies of these documents. Articles from over 700 journals and magazines are indexed in ERIC's Current Index to Journals in Education (CIJE); many of the articles cited are annotated as well.

Each clearinghouse provides syntheses and analyses of that information in order to keep teachers, program administrators, researchers, and decision makers in all areas of education abreast of the most recent and important findings in their respective fields. In addition to publishing bibliographies and topical papers of interest to those involved with the care, development, and education of young children, ERIC/EECE produces resource lists and newsletters on a regular basis. Clearinghouse staff members also respond to individual information requests.

We are pleased to announce publication of What's Happening in Elementary School Classrooms: A Review of Selected Literature.

Lilian G. Katz, Ph.D.
Director, ERIC/EECE

INTRODUCTION

At the beginning of each school year, teachers are assigned a group of students and given various resources to use to teach them. One of the most important resources provided is time. The teacher has to decide how much time to allocate to various topics and activities. Since the total amount of time is fixed, time allocated for one activity necessarily limits the amount of time given to other activities. A major part of teacher decision making thus is deciding how best to use the limited amount of available time.*

Descriptive accounts of how teachers use their school time have been approached from a variety of perspectives. The most common approach has been to report the amount of time devoted to various curricular areas. Teachers are in fact often required to account for their time usage in this manner in order to verify that they have met minimum standards set by administrators.

While constraints and guidelines exist for how the available time will be used, teachers have substantial freedom in how they allocate school time to various activities. District policies, teacher preferences and skills, and pupil characteristics all influence the decisions made by the teacher, but it is the implementation of the decisions through actual classroom activities that will influence students.

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All too often when examining the impact of "school" on student achievement, educational researchers have assessed the relationship between general factors, such as district curriculum and policy and school organization, or idiosyncratic factors, such as a teacher's education or personality. Yet such factors cannot directly influence student achievement. They can merely influence the kinds of activities that occur in the classroom. It is only the activities themselves that can ultimately influence learning.

In this paper, three major topics will be examined. First the literature which looks at the amount of time students spend in school will be discussed. Educational researchers are beginning to examine two seemingly obvious aspects of learning: (1) that the amount learned depends on the kind of educational activities in which children participate and (2) that the more time children spend in an activity, the more they will learn. Researchers in this area of study consistently find substantial variability in the amount of schooling that students in different schools receive. Further, this body of literature indicates that even when using a measure as gross as the number of hours children are physically present in a school building to index their "education," investigators find a positive relationship between the quantity of education and student achievement.

While research has shown that student achievement is related to the amount of time devoted to academic activities, not surprisingly there is a stronger relationship between achievement and the amount of time children are actively engaged in academic activities and learning. Thus, teachers not only have the responsibility of providing children with the opportunity to learn, but must also seek to actively engage children in planned activities.

The second major section of this paper will examine the kinds of activities that elementary school teachers typically include in their classrooms. Teaching is not just conveying curricular content; it is also deciding how to parcel that content out for different pupils, in different amounts and various fashions. Decisions must be made by the teacher regarding grouping practices and the allocation of specific time periods to certain activities. Few other jobs in our society exist in which one adult has such responsibility for creating, managing, and dissolving a sequence of activities for a group of individuals.

A substantial number of studies have found lawful relationships between the format of school activities and the behavior of participants in those activities. Three of the earliest studies to examine the relationship between activity formats and student behavior were conducted by Shure (1963) in a nursery school, by Kowatrakul (1959) in an elementary school, and by Edmiston and Braddock (1941) in a secondary school. More recently, studies have been conducted by Bossert (1977, 1979), Grannis (1978), Gump (1969), and Kounin and his colleagues (Kounin, 1970; Kounin & Doyle, 1975; Kounin & Gump, 1974; Kounin & Sherman, 1979).

Demonstration of a relationship between settings and behavior clearly is not new. Indeed, this relationship is the very basis of the field of ecological psychology. What is most important about the relationship as it applies to school settings is that the kinds of behaviors found to relate to setting differences are the same behaviors crucial to student achievement. Specifically, research indicates that there is a clear relationship between activity formats and student involvement. Relationships have also been found between the format of activities and student/student relationships. Further, evidence is beginning to accumulate indicating that the management task faced by teachers also depends, in part, on the kind of activity operating in the classroom.

The final section of this paper will examine two of the major management issues faced by classroom teachers: (1) the management of the transitions between activities and (2) the development and implementation of teaching plans. Once the teacher has started an activity, children will generally behave in ways that are consistent with the demands of the activity. The management tasks of orchestrating transitions and formulating plans have been selected for discussion since it is felt that, while both of these teaching tasks get little attention in the educational literature, it is during the planning, beginning, and termination phases of activities that teachers have the greatest potential to ensure that children become engaged in activities that will be both personally and educationally satisfying experiences.

I. USE OF TIME IN ELEMENTARY SCHOOLS

Quantity of Schooling

The amount of time pupils spend in school can be specified in terms of the number of days in the school year and the number of hours in the school day. This quantity, which specifies the amount of time schools are expected to be in session, has been termed the nominal quantity of schooling by Harnischfeger and Wiley (1976).

Typically, school is in session 180 days each year. While the number of days in the school year is roughly equal across schools, according to the 1972 Digest of Educational Statistics, the average length of the school year in the United States does vary across states by approximately 6% (cited in Wiley & Harnischfeger, 1974).

There is substantially more variability across schools in the length of the school day than there is in the length of the school year (Jencks, 1972; Wiley, 1976). The typical school day lasts 6 hours with an hour lunch break. Stallings (1975) found that the length of the school day varies among schools by as much as 2 hours per day. Within schools, variation sometimes occurs in the amount of time older and younger children attend school, with older children being in school for slightly more time each day than younger ones (Borg, 1980).

While the nominal quantity of schooling indicates the amount of time schools are scheduled to be open, the actual quantity of schooling is a measure of the amount of time schools are actually open (Harnischfeger & Wiley, 1976). Inclement weather, parent boycotts, and teacher strikes are some of the factors that can cause the actual quantity of schooling to be less than the nominal quantity of schooling.

Because of absences due to illness or truancy, the number of days a particular student attends school is of course often smaller than the number of days the building is open. The actual quantity of schooling (or the "average daily attendance") for a particular student can be calculated by multiplying the number of hours in the school day by the number of days that the particular child is in school. Some researchers have used such average daily attendance figures to calculate the quantity of schooling, using the school as the unit of analysis. Wiley and Harnischfeger (1974) found that within the Detroit public schools, this quantity ranged from 710 to 1,150 hours per year. In other words, students in some Detroit schools received 50% more schooling than did pupils in other schools!

Relationship between Quantity of Schooling and Learning

Obviously, the quantity of schooling to which students are exposed varies greatly across schools. The importance of this variability can be assessed from a number of studies that have examined the correlation between quantity of schooling and achievement. Wiley and Harnischfeger (1974) found a positive correlation between the quantity of schooling pupils received (calculated from average daily attendance figures, length of school day, and length of school year) and student achievement in verbal ability, reading comprehension, and mathematics. Similarly, in her evaluation of 150 Follow Through classrooms, Stallings (1975) found that the length of the school day was one of the variables correlated with achievement in both reading and mathematics.

Presumably, the relationship between quantity of schooling and achievement results from more time in school being related to more time allocated to and spent on academic activities. However, it is possible that teachers who have more available time do not necessarily use their time as efficiently as teachers with less available time. One cannot safely assume that students will be engaged in an extra hour of academic activities for each extra hour a school is open.

While educational researchers have not examined how the allocation of school time to various activities is affected by the total amount of time available, research in other areas suggests that how much time an individual spends to complete a task is affected by the amount of time available. For instance, Gurkaynak (Note 1) compared the way women working outside the home and women not holding outside jobs used their time on domestic tasks. He found that while all women were engaged in similar activities, the total time spent by women who worked outside the home to complete household chores was less than the time spent by women not holding other jobs. These findings are consistent with those presented by other researchers (Walker, 1969). Gurkaynak also found differences in how the two groups of women completed their chores. As compared with women holding outside jobs, those women only working within the home re-entered settings more frequently and spent less time in each setting per entry. This finding suggests that women not working outside the home may be more distractable and less efficient than those who do hold other jobs.

In addition to the documented variability that exists in the quantity of schooling different students receive, various scheduling of the school year may result in the same quantity of schooling, but with time being distributed in different patterns. Schools that are open relatively few hours per day could be open for more days each year, as compared with schools having relatively long school days and a shorter year. Both schedules could expose children to the same quantity of schooling.

Presently, we do not know how alternate schedules resulting in the same quantity of schooling affect teachers and students. Educational researchers who have written on the quantity of schooling (Bennett, 1978; Bloom, 1974, 1976; Carroll, 1963; Harnischfeger & Wiley, 1976; Wiley, 1976; Wiley & Harnischfeger, 1974) have assumed that all hours the school is open are equivalent. This might not be a valid assumption.

For example, the way vacation days are distributed throughout the school year could affect the way teachers and students use school time. While a schedule including three 1-week vacations could expose children to the same number of hours of schooling as a schedule including five 3-day holidays, whether these alternative schedules are equivalent in terms of how time is employed by teachers and students has yet to be assessed. McCay (1959), in a discussion of the impact of holidays on work activities in businesses, points out that not only is time lost on the days a business is closed, but that time usage is affected during days prior to the vacation (due to anticipation and preparation for the holiday), as well as during days subsequent to the vacation (as employees "recover" from holiday activities). Holidays probably have similar effects on teachers and students. Thus, if schools vary in the frequency with which they have vacations, schools that have vacations more frequently might lose more time than schools with vacations that occur less frequently. The consequences of such variations can only be assessed by examining how students and teachers make use of available time.

Allocation of School Time

Within the constraints of the amount of time available, a child's in-school time is allocated to various activities. In some educational settings, pupils are free to choose how to allocate their time (or portions of their time). More commonly, however, the classroom teacher--working within guidelines and/or constraints imposed by policies at the school, district, state, or federal level--determines how each pupil's time will be allocated. Since the total amount of time is fixed, time allocated for one activity limits the amount of time given to other topics. A major part of a teacher's decision making is how best to use the limited amount of time available.

In recent years, several researchers have detailed how teachers spend their time. In one such investigation, Rosenshine (1980) examined how much time a sample of second-grade and fifth-grade teachers devoted to three kinds of activities: (1) academic activities (e.g., reading, mathematics, science, social studies), (2) nonacademic activities (e.g., music, art, storytime, sharing) and (3) noninstructional activities (e.g., transitions, class business). Rosenshine found that the largest percentage of time was allocated to academic activities. These activities accounted for 57% of in-class time (or 2 hours and 15 minutes each day) for the average second-grade student and for 60% of in-class time (or 2 hours and 50 minutes) for the average fifth grader. Reading and language arts accounted for most of the academic time, followed by mathematics and mathematics-related activities.

While a majority of school time was allocated to academic activities, substantial portions of the school day were spent in nonacademic and noninstructional activities. Almost 25% of the in-class time (at both grade levels) was allocated to nonacademic subjects such as music, art, and physical education, and almost 20% of the in-class time (approximately 45 minutes) was spent in noninstructional activities (waiting after finishing an assignment, class business, going to and returning from lunch and recess). Other researchers using similar systems to categorize school activities have obtained similar results (Bennett, Andreae, Hegarty, & Wade, 1980; Conant, 1974; Gump, 1967).

Many available documents describe, by curricula, both current and historic time allocation in schools. Frequently, teachers are in fact required to account for their time use in this manner, being told how much time they must devote, at a minimum, to each curricular area and being required to submit information to administrators to verify that these minimum standards have been met.

More than 50 years ago, Mann (1928) conducted a survey of time allocation in 444 American cities as well as performed a review of previous time allocation studies. The oldest study located by Mann in which time allocation by subject area was noted was a report of the Cleveland, Ohio, Board of Education for the year 1855-1856. Other early studies of time allocation by subject area were conducted by Payne (1905) and Holmes (1915).

Direct comparisons of findings of these early time allocation studies and more recent studies are difficult to make because of inconsistency in the categories used. Despite our inability to make direct comparisons, one clear, consistent finding of these early studies as well as of studies conducted in recent years is that there is substantial variation in the total amount of time teachers allocate to each subject and to specific topics within the subject.

School district policies often set standards for the amount of time to be devoted to a particular curriculum. Even in these situations, extremely wide variations in time allotted to the curriculum have been found. For example, Smith (1977) examined the amount of time given to a specific social studies curriculum in fifth-grade classes within a three-county area of southern Maryland. She found that over a 100-day period, teachers reported spending anywhere from 937 to 4,740 minutes on the curriculum. In other words, some of these teachers spent five times the amount of time on social studies than did other teachers!

Probably the most important study conducted in recent years regarding the use of time in elementary schools is the Beginning Teacher Evaluation Study (BTES). The BTES differs from earlier research on allocated time in several important ways. First, data were gathered from both teacher logs and direct observation. This procedure is in contrast to most earlier studies, in which either school or district records were used to estimate allocated time, or in which teachers were asked to estimate in retrospect how much time they had devoted to various content areas. Second, not only were teachers responsible for recording how they used the time on a daily basis, but this information was recorded by each teacher for six target pupils instead of for the class as a whole. Obviously, recording time allocation for specific students is more accurate than recording it for an entire class, school, or district, as previous researchers have done. Time spent in activities can vary for different students, even in the same classroom.

The BTES researchers were mainly concerned with instruction in reading and mathematics. An important aspect of the data was that rather than collecting only summary information on the total amount of time spent in reading and mathematics activities, the researchers gathered detailed information on specific topics covered within each content area (e.g., oral reading, compound words). Further, teachers were instructed to record reading and mathematics activities participated in by the target students, not just time spent in "reading" or "mathematics" lessons. Clearly, just as mathematics can be part of science activities, much reading can occur during lessons devoted to social studies, health, and other content areas. Earlier studies did not recognize such overlap among curricular areas.

BTES data were collected for four separate samples of students and teachers (at two grade levels--second and fifth) between the years 1974 and 1977, during two time periods within each year, and with relatively long data collection periods within each phase of the study. Results of the study are reported in approximately three dozen technical reports as well as in a recent book summarizing the project (Denham & Lieberman, 1980).

In one presentation of the data collected as part of the study, Fisher, Berliner, Filby, Marliave, Cahen, and Dishaw (1980) focused on the amount of time allocated to mathematics and reading in a sample of 25 second-grade and 21 fifth-grade classrooms. Very large differences in time allocation were observed between grade levels. For example, data indicated that the average amount of time allocated to mathematics in second-grade classes varied from 25 to 60 minutes per day. In fifth-grade reading, the average amount of time allocated varied from 60 to 140 minutes per day. Time allocation also varied for pupils within the same classroom. Further, within reading and mathematics, teachers differed in the amount of time they allocated to specific skill areas. As Fisher and his colleagues write,

> For example, in one second-grade class the average student received 9 minutes of instruction over the whole school year in the arithmetic associated with the use of money. This figure can be contrasted with classes where the average second grader was allocated 315 minutes per school year in the curriculum content area of money. As another example, in the fifth grade some classes received less than 1,000 minutes of instruction in reading comprehension for the school year (about 10 minutes per day). This figure can be contrasted with classes where the average student was allocated almost 5,000 minutes of instruction related to comprehension during the school year (about 50 minutes per day). (p. 16)

Clearly, the data presented by Fisher and his colleagues indicate that there is wide variability in the amount of time teachers allocate to reading and mathematics and to the specific topics of content they cover. In addition, these findings do not seem to be specific to American schools. Bennett (1976) found that in England, where there is no central control of curricula, the amount of time teachers reported spending on English and mathematics varied from 1½ to 8 hours per week. Other British studies support Bennett's findings (Ashton, Kneen, Davies, & Holley, 1975; Bassey, Note 2).

Relationship between Allocated Time and Learning

The studies reviewed, as well as many others, have found extreme variation in the amount of time allocated to different academic activities in elementary schools. Generally, studies of the time allocated to the various curricular areas have been conducted to assess the equality of educational opportunity. Researchers who measured the amount of time allocated to various activities were primarily interested in this quantity because of the belief that variation in allocated time is systematically related to variation in student achievement.

Part of the BTES study included an examination of the relationship between allocated time and student achievement. Based on their analyses, the BTES investigators concluded that the amount of time teachers allocate to instruction in a particular content area is positively related to student achievement in that content area (Fisher et al., 1980).

Several other researchers have measured and related to student achievement the amount of content covered by teachers. Borg (1979) conducted two studies in which the relationship between teacher coverage of academic content and pupil achievement was examined. Several significant correlations (ranging up to .67) were obtained between teacher coverage and pupil achievement. These studies therefore suggest that the amount of instruction in a given area, either among classes or among students in the same class, is related to the amount learned.

Student Engagement

While researchers have been able to demonstrate that a positive correlation does exist between allocated time and achievement, clearly, many factors in addition to allocated time influence learning. Carroll (1963) was the first person to articulate a model of school learning in which time and student engagement played major roles. Carroll's basic thesis was that the degree of learning is a function of the ratio of the amount of time a student spends on a task to the amount of time the student needs to master the task. Carroll identified five factors thought to influence learning. Three of these factors (aptitude of the learner, the learner's ability to understand the instruction, and the quality of the instruction) are determinants of the time needed for learning. The other two factors (opportunity to learn and the learner's perseverance) are determinants of the time spent in learning.

One of the hypotheses implicit in Carroll's model of learning, as well as in more recent extensions of his model (e.g., Anderson, 1976; Bloom, 1974; Harnischfeger & Wiley, 1976), is that, other things being equal, the degree of learning is a simple function of the amount of time during which the pupil engages actively in an academic task. In other words, when circumstances such as aptitudes and supporting conditions do not vary, the more time students spend trying to learn, the more they will learn.

Relationship between Engaged Time and Learning

Subsequent to the publication of Carroll's (1963) model of school learning, many educational researchers have examined the relationship between the amount of time spent learning and student achievement. Block and Burns (1976) reviewed some of this research and concluded that the greater the elapsed study time and the greater the proportion of that time actually spent in learning, the greater the achievement. Engaged time has been found to be consistently a better predictor of learning than elapsed time (Bloom, 1976; Brophy & Evertson, 1976; Stallings & Kaskowitz, 1974).

Most studies that have tested Carroll's model of learning have been correlational studies. While these studies indicate that there is a positive correlation between learning time and achievement, they of course do not allow statements of causality to be made. However, in the few studies in which academic learning time was manipulated experimentally, researchers have found that by increasing academic learning time, achievement may be improved. At this point, it appears that one of the simplest ways to increase the amount learned is to increase the amount of time spent engaged with the material to be learned.

One way to increase the amount of time children spend engaged with academic material is, then, simply to allocate more time to such material. Yet there is a limit to how much change can occur in allocated time; factors already discussed (such as the length of the school day and policies specifying time to be spent) affect how teachers allot school time. Further, some educators have expressed concern over the possibility that increasing instructional time could lead to boredom and thus to less student engagement.

A second way to increase academic time is to optimize the use of the school day. Students do not spend the total time allocated for a particular pursuit actively engaged in that pursuit. During part of this allocated time, students may be distracted by other pupils or external events, may be interrupted from the task by the teacher, or may simply be uninterested in the task and thus not attend to it. A major challenge faced by teachers is keeping students engaged in learning activities.

The Modification of Time-on-Task

Whether or not a particular child is "on-task" during a formal lesson and the percentage of children in a class on-task during lessons have been popular variables in educational research for many years, beginning with the work of Morrison in the 1920s (Morrison, 1925).

During the late 1960s, when the principles of behavior modification began to be used in classrooms, researchers used student "on-taskness" as a common behavior to be modified. Most often in these studies, teachers were trained to use their attention to provide differential consequences to students in order to reduce off-task and to increase on-task behavior

(Becker, Madsen, Arnold, & Thomas, 1967; Broden, Bruce, Mitchell, Carter, & Hall, 1970; Hall, Fox, Willard, Goldsmith, Emerson, Owen, Davis, & Porcia, 1971; Harris, Wolf, & Baer, 1964; Lates, Egner, & McKenzie, 1971; Madsen, Becker, & Thomas, 1968; Thomas, Becker, & Armstrong, 1968).

In classroom research, student on-task behavior has generally been operationalized in terms of the child's overt orientation (visual and bodily) to the task stimulus (e.g., book, teacher, film), and observer reliability has not been a methodological problem. The definition of whether or not a child is "on" or "off" task is usually flexible enough to accommodate the various tasks children encounter during the typical school day. For example, during a reading lesson, reading in one's reader is on-task; this same nondisruptive behavior would not be considered on-task during a math or science lesson.

In most studies of this type, researchers use a two-category system (on-task versus off-task) and generally assume that students are on-task as long as they are not engaged in any inappropriate behaviors. Such systems might overestimate the percentage of time students are on-task in a manner biased for particular activities. For tasks that require cognitive rather than behavioral responses (e.g., listening to a record as opposed to making a valentine), whether or not a child is truly on-task is more difficult to assess. Good and Beckerman (1978) used a four-category coding scheme ("definitely involved," "definitely not involved," "can't tell," or "misbehaving") to record student behavior, finding that pupil involvement was easier to classify (i.e., less "can't tells") during periods of seatwork than during times when the teacher was talking or working with the whole class.

Most researchers who measure student engagement find that children are often off-task. Filby, Marliave, and Fisher (1977) observed pupils over a 7-day period to determine the percentage of allocated time the pupils actually spent on-task. Across classes, students averaged 50% engagement but showed variations from 37 to 74%. The within-class variations were even more marked, ranging from 20 to 29% and from 90 to 100%.

Behavior modifiers have been successful in getting children to increase their rates of attention and to decrease inappropriate, disruptive behavior. These programs of applied research were presumably implemented for two reasons--to increase the child's opportunity to learn and to achieve order in the classroom. Winett and Winkler (1972) have criticized this line of research for reinforcing students for being docile, arguing that American schools are already too regimented and students too docile. However, in light of the correlational findings of the relationship between attention and achievement, the goal of increasing children's attention to their work should not be dismissed. Further, in American schools, teachers are judged not only by their teaching ability but also by their management skills and ability to maintain an orderly classroom. The control of misbehavior is a major concern of teachers, principals, and parents (Gallup, 1975). Not only are teachers evaluated by others on how well they are able to control their students' attention, teachers often evaluate their own performance in terms of how well children attend to the task (Applegate, 1969; Doyle, 1979; Jackson, 1968; Yinger, 1977).

Doyle (1979) has recently argued that gaining the involvement of students, or at a minimum eliciting their cooperation, is the main concern of teachers. Apparently, this is even more important to many teachers than the academic achievement of students per se. Researchers concerned with the processes involved in teacher planning have collected data indicating that pupil involvement is the most important criterion used by teachers in judging the adequacy of their plans both before they are actually implemented and following completion of the lesson (Yinger, 1977).

While some educators might question the value of making evaluations of teachers and students on the basis of measures of student involvement, using engagement as a criterion for educational quality and holding high involvement as an objective to achieve seems reasonable. While it might perhaps be argued that students can easily learn to "look" involved, and that using involvement as an objective can foster docility and compliance among students, evidence has already been presented in this paper establishing that the amount of time students are actively engaged with learning materials is a reliable and significant predictor of student achievement. Thus, it seems crucial for educational researchers to understand the many factors that influence the amount of time students spend involved with learning materials and to be able to suggest ways for teachers to maximize this time.

Sometimes observers consider children to be off-task when on closer examination it is the lesson that is actually off-task, not the children. Kounin and Doyle (1975) delineated the following five occasions when a lesson could be off-task: (1) the lesson's being stalled, (2) children completing the lesson ahead of time, (3) children waiting for distribution of props or directions from the teacher, (4) an outside signal lag, or (5) "overdoneness" (i.e., dwelling on an issue by engaging in action or talk that exceeds a point necessary for most pupils' understanding or inducement to act). In all of the above situations, signals for behavior cease or are unclear. When trying to increase the amount of time children spend in school engaged in academic activities, teachers must thus attend to whether lessons are operating to their full potential as well as try to induce the maximum amount of attention from students.

II. ANALYSES OF CLASSROOM OPERATIONS

Several researchers have examined student attention in contrasting curricular areas and have found that students are more on-task during instruction in certain content areas than they are in others. Most researchers who have found relationships between student attention and the content of instruction explain such differences in terms of qualities of the content--that some contents are more "novel," "interesting," or "challenging" than others. Instead of relying on such explanations, other researchers have examined the ways in which teachers present various kinds of information to students. Once examination of format differences are included in interpretations of differences in attention, it appears that it might as easily be the format of the lesson as the content of the lesson that controls the attention of students.

Probably the most important contributions in this area have been made by Stodolsky and her colleagues (Stodolsky, Ferguson, & Wimpelberg, 1981; Stodolsky, 1979, 1981). Stodolsky (1979) compared student attention during social studies and mathematics. She found that, overall, students were slightly more attentive in social studies segments than in mathematics segments. Stodolsky (1979) further examined the relationship between student attention and lesson format, finding that students were highly involved during audiovisual lessons, contests and games, and tutoring lessons, and were less involved during discussions, student reports in social studies, and when correcting work in mathematics.

Most importantly, Stodolsky (1979, 1981) found that contrasting lesson formats were not randomly distributed across social studies and mathematics lessons, but instead were used differentially to present these contrasting types of content. Mathematics and social studies lessons differed both with respect to the overall distribution of lesson types used and also in the length of the lessons. There was more variability in the lesson formats used by teachers in social studies than in mathematics. In addition, seatwork occurred much more frequently and tended to last longer in mathematics than in social studies. Recitations also occurred more frequently in mathematics than in social studies, but social studies recitations were somewhat longer and more variable in length than were mathematics recitations.

In a recent study, Stodolsky et al. (1981) compared the way teachers organized recitations in mathematics and in social studies, finding qualitative differences in the organization of recitations in the two different content domains. For example, in social studies, recitations were almost always participated in by the whole class, while in mathematics they involved less than the whole class about one fourth of the time. In social studies, recitations consisted primarily of "straight" question-and-answer sessions, lessons in which children took turns reading orally one at a time, or an interspersing of these two formats. In mathematics, there was a notable amount of active problem solving on the part of the students during recitation. Children often wrote and solved problems at their desks or at the blackboard, and students were frequently called on to explain their work. Adams and Biddle (1970), using data on mathematics and social studies classes at the sixth-grade level, similarly found that students were more active in their responses in mathematics than in social studies.

The findings of Stodolsky and her colleagues clearly indicate that teachers vary the way they organize instruction in different curricular areas. Thus, when interpreting the results of studies that demonstrate a relationship between student time-on-task (or any other behavior) and the content of instruction, it is important to examine the type of activity format used to communicate the content information.

The Format of Lessons

The most common approaches to studying the relationship between activity formats and the behavior of participants have been either (1) to select one particular lesson format, such as recitation, and to examine it in depth or (2) to compare behavior in different types of lessons--such as recitations, seatwork, or peer-tutoring situations.

While it might seem that there would be an almost endless variety of lesson types to compare, researchers who have used this approach have argued that in practice only a few teaching formats are used. For instance, Jackson (1968) has written that

> Despite the diversity of subject matter content, the identifiable forms of classroom activity are not great in number. The labels: "seatwork," "group discussion," "teacher demonstration," and "question-and-answer period" (which would include work "at the board"), are sufficient to categorize most of the things that happen when class is in session. "Audio-visual display," "testing session," and "games" might be added to the list, but in most elementary classrooms they occur rarely. (p. 8)

Researchers have confirmed Jackson's claim, documenting that in American elementary schools, three instructional formats certainly dominate the classroom: recitations, seatwork, and small-group instruction, particularly the reading circle (Adams & Biddle, 1970; Dunkin & Biddle, 1974; Hoetker & Ahlbrand, 1969; Gump, 1967). In fact, it could be argued that there are only two dominant formats: recitation and seatwork, with small-group instruction merely being a variation of the recitation format.

Analyses of the Recitation Format

The type of lesson that has received the most attention over the years is the recitation method. While the literature on recitation will be reviewed briefly here, several historical analyses of the format are available for the interested reader (Hoetker & Ahlbrand, 1969; Stevens, 1912; Thayer, 1928).

Recitations are characterized by teacher-directed group activity. During recitations, the teacher is continuously engaged in directing and questioning the students. Children typically raise their hands to respond to the teacher's questions and answer the questions only after being recognized by the teacher. Student work is continuously supervised during recitations. Typically, all students in the group work on a single task. There is no student choice of task, partners, process, or product.

Interestingly, Thayer (1928) states that recitations were first introduced into American schools as a progressive reform, making it possible for a teacher to deal with many students. Previously, each student had recited the entire lesson individually at the teacher's desk. Thayer explains that group recitation was used by the teacher as a sampling procedure: Through recitations, teachers could estimate student learning by asking each student a random sample of questions.

Contrary to the original purpose of recitations, today, at least in elementary schools, recitations are frequently used with small rather than large groups of students, particularly during reading but also during mathematics. When used with a small subset of the class, instead of as a large-group instructional method, recitation becomes more like the individualized teaching method it was originally designed to replace. Research has additionally indicated that when recitations are used with the entire class, students are not randomly called upon to answer questions. Instead, it tends to be the higher achievers who answer a disproportionate number of the teacher's questions (Bossert, 1979).

Most of the studies that have been done regarding instruction during recitations have focused on the verbal behavior of teachers and students during this lesson format. Studies have been conducted in elementary as well as in secondary schools and in many different content areas. These studies unambiguously document that during recitations, the verbal pace of the lesson is generally very rapid. During the typical recitation in a secondary school, teachers ask an average of two questions per minute (Bellack, Kliebard, Hyman, & Smith, 1966; Pepoon, 1926; Stevens, 1912). Stevens (1912) found this rapid pace to be equally true of recitations in history, science, mathematics, foreign languages, and English.

During recitations, most teachers actively try to avoid periods of silence. By using students who are likely to have "correct" answers and who are likely to be able to respond rapidly, the teacher is able to achieve this goal. This goal might seem reasonable in light of the research of Kounin and Doyle (1975) establishing that misbehavior is most likely to occur when there is a lag in the continuity of the lesson. Unfortunately, while the avoidance of pauses might reduce misbehavior, there is a growing body of literature convincingly demonstrating that students learn more when teachers increase the amount of time they wait between asking a question and selecting a student to answer the question. For example, Tobin (1980) conducted an experiment in which the length of time teachers paused during science lessons was manipulated. He found that students learned more when teachers had a "wait-time" that averaged 3.1 seconds than when the wait-time lasted an average of only .7 seconds.

Analyses of the Seatwork Format

Rosenshine (Note 3) reported that elementary school students spend about one-third of their time in teacher-led settings (i.e., large-group instruction, small-group instruction, or individualized instruction) and over two-thirds of their time in seatwork. Seatwork as defined here refers to all activities that children do when working alone (e.g., reading a book, doing computational problems, reading selections and answering questions, practicing alone on material taught in teacher-led settings). Rosenshine (1980) found that students spent about 66% of their time doing seatwork during reading and 75% of their time doing seatwork during mathematics. For most of the remaining time during reading and mathematics, students participated in either a whole-class or small-group recitation. Rosenshine reported that, overall, students were engaged during 84% of the time during recitations but only 68% of the time during seatwork. Further, when a large proportion of allocated time was spent in seatwork (e.g., 90%), engagement was reduced, particularly in mathematics. Other researchers have similarly found that extended periods of seatwork lower student involvement, particularly among low achievers (Good & Beckerman, 1978; Stallings & Kaskowitz, 1974; Soar, Note 4).

While educational researchers have tended to devote more of their research efforts to the study of recitations than to analyses of seatwork, and have conducted extensive investigations of patterns of teacher/student interaction, the reality is that students are spending most of their day in seatwork activities and that they are less engaged in seatwork than in recitations. A major concern for future studies therefore should be learning how to increase student engagement during periods of seatwork.

Relationship between Activity Format and Behavior

In a recently completed study, Bossert (1977, 1979, Note 5) explored over a 2-year period the effects of various "task organizations" (i.e., activity formats) in third-grade and fourth-grade classes. Bossert found that teachers tended to rely on a few activity formats, concluding that three task organizations dominated these classes: recitations, class-task activities, and multi-task activities. These same three patterns of task organization have also been observed by other researchers (Edenhart-Pepe, Hudgins, & Miller, 1981).

The activity pattern labeled class-task by Bossert consists of small groups and/or individuals working on various assignments. Most often the task is assigned by the teacher, although sometimes students have the option of selecting their own tasks and/or partners. There is some peer collaboration during class-tasks, but the teacher does not continuously supervise the students' work.

Similar to class-tasks are multi-tasks, which also involve the independent work of individuals or small groups. In multi-task activities, students have more choice in organizing and completing their work than in class-tasks. Further, as compared with class-tasks, there are more varied assignments occurring simultaneously during multi-task activities. As in class-tasks, during multi-tasks the teacher does not continuously supervise the students' work.

While Bossert used three task organizations to describe the activities he observed, two of the organizations, class-task and multi-task activities, seem quite similar. Both are merely variations of the more generic pattern of school activities most often termed "seatwork." Bossert's work, then, is a further confirmation of earlier studies demonstrating that recitations and seatwork are the two dominant activity formats in elementary school classrooms.

During the first year of Bossert's study, two third-grade teachers who taught in the same elementary school participated in the investigation. They were selected for their reputations of being good teachers and of organizing their classroms quite differently from each other. During the second year of the study, Bossert continued observing these same two teachers (who now of course had new groups of students) and began to observe two fourth-grade teachers in the same school, who again were selected for their reputations of being good teachers using contrasting task organizations. Bossert was able to obtain the cooperation of the school principal and the children's parents such that children who had been observed during the third grade were fairly randomly assigned to the two fourth-grade teachers. Thus, some children had teachers in the third and fourth grades who organized their class quite similarly, while other children had contrasting experiences during these 2 years.

While all of the teachers Bossert observed used all three kinds of task organizations as part of their teaching, at each grade level one of the teachers could be characterized as using primarily recitations, while the other teacher could be characterized as using an organization based primarily on class-task and multi-task activities. Thus, Bossert was able to contrast task organizations both within classes and across classes. Further, for the third-grade teachers and the children who were in third grade during the first year of the study, comparisons were able to be made for a 2-year period.

Bossert found a relationship between task organization and the degree of teacher control. While some teachers clearly were more "controlling" than others, Bossert found that when comparing the same teacher in different classoom situations, all teachers were more controlling in recitations than in other formats. Traditionally, a leader's behavior is seen as a consequence of either the individual's personality or certain learned administrative skills. Bossert's study provides evidence that "leadership style"--in this case the teacher's degree of control over classroom events--may be related at least in part to the organization of instructional tasks. The initial choice of tasks may reflect a teacher's predeliction for certain types of control, but once chosen, the exigencies of the task structure influence the types of control a teacher exercises.

Bossert also found that the organization of the task influenced the sanctions that teachers used. During recitations, teachers used quick and impartial sanctions (usually a verbal or visual desist) to control their pupils. In addition, they tended to sanction rigorously every violator of classroom rules. Bossert attributed this result to the fact that since recitations rely on the teacher as the main initiator of the activity, the entire class comes to a halt, at least in terms of instruction, when the teacher leaves the controlling position to deal with an individual child. Inappropriate behavior must therefore be dealt with quickly so that the recitation can progress. Bossert felt that it was primarily the "publicness" of recitations that made teachers be impartial and consistent. During multi-task activities, teachers can provide special treatment to individual pupils without threatening the jural order of the classroom. This situation is the case because such treatment is less visible to others when pupils are working separately than when they are working as a group.

When students with different aptitudes are engaged in a common task, some students will either finish or demonstrate competence sooner than others. The teacher thus faces a managerial task of what to do with these students. Keeping these students in the lesson, particularly if it is a recitation or discussion, may facilitate the teacher's work, for these students can contribute to the activity and serve as standards for the rest of the group. On the other hand, bored students may disrupt the activity or at least decrease the teacher's ability to maximize the time spent with the poorer students.

Dahloff's (1971) work on recitation and large-group activities indicates that many teachers pick a "criterion steering group," referencing progress to the achievement of the 20% of the class located roughly in the middle. Students who learn faster than this group must wait or receive other assignments; those who learn more slowly may never have the opportunity to grasp the material.

The format of class activities also influenced the way in which teachers in Bossert's study provided assistance to students. Some of the teachers Bossert observed provided the top performers with extra assignments, with the intention of then being able to provide the group of students who required additional help with more attention. Paradoxically, this form of management resulted in the top performers' receiving more teacher attention than did the other students. Between the time spent explaining the extra assignment, helping the students begin it, and answering questions during the work, the teacher allocated more than the average amount of assistance to the top performers. The fact that these students had instruction paced at a higher rate and received more help with their work seemed to bolster their achievement. Bossert (1979) found that high achievers also received more attention than low achievers during recitation. Low achievers received the most aid during multi-task activities.

Bossert (1977, 1979, Note 5) found that peer relationships were also influenced by the task organization. In classes dominated by recitations, academic performance played an important role in the children's assessments of themselves and their peers. Performance was stated as a criterion for friendships, and friendship cliques generally contained only children achieving at similar levels. Bossert hypothesized that because the structure of recitation makes task performance both visible and contingent on others' performances, pupils know one another's achievements and failures, become concerned about their relative achievements, and evaluate each other in terms of common performance criteria. The resulting academic stratification fosters competitive relations and stimulates associations within achievement groups. By contrast, in classrooms which had few group activities and relied largely on individualized and small-group projects (multi-task organized classes), interpersonal assessments rarely were based on task performance, and the children did not select friends according to their academic standing in the class. In these classes, task performance was less visible than in the recitation format, largely independent of others' performances, and generally noncomparable.

Patterns of peer choices among the children who experienced different classroom task organizations indicated that cooperative and competitive peer relations were not linked to the children's personality characteristics.

Pupils who participated in competitive peer networks in their recitation-dominated third-grade class became less competitive and chose friends without regard for achievement level in the multi-task organized fourth-grade class (and vice versa). It appears that to the extent that task performances are visible, comparable, and clearly linked to classroom rewards, children will choose friends on the basis of academic status.

Characteristics of Lesson Formats

Bossert (1977) used five characteristics to describe the ways the three task organizations varied: size of the work group, number of different tasks, amount of pupil choice in organizing tasks, "publicness" of task performance, and comparability of performance. Similar characteristics have been found to affect performance and employee relationships in industrial settings (Blau, 1955; Borgatta & Bales, 1953; Homans, 1950; Sayles, 1958; Woodward, 1958).

While Bossert used five characteristics of school activities to explain his results, clearly differences exist among these three task organizations other than those identified by Bossert. Such differences include the kind of response required by the task, objectiveness of the response, and role of the teacher. If recitations are compared with both class-task and multi-task activities, other major differences between activity structures emerge: oral versus written manipulation response format, private versus public responses, teacher versus pupil control of pacing, centralized versus decentralized control, interdependent versus independent relationships, immediate versus delayed feedback. All of these characteristics, and others, potentially have important consequences for both pupils and teachers.

Further, Bossert did not try to locate variations of each lesson format, nor did he specify the attributes of the particular lesson. In a research project conducted by Gump (1967), such comparisons were possible. Gump catalogued the activities entered in by third-grade students throughout the school day, using a variety of characteristics to describe the format of each activity. One of the characteristics Gump used for categorizing the activity was the concern of the segment (e.g., reading, mathematics, story time). The concern of a segment as defined by this investigator does not describe the format of the segment but merely indicates its purpose. Gump also used five characteristics to describe the pattern of behavior that was demanded by the lesson format: (1) teacher leadership pattern, (2) pupil/pupil relationship, (3) pacing, (4) grouping, and (5) pupil activity. If activity patterns are observed across different concerns, then seven patterns account for 67% of the segments. Three of the most predominant activity patterns identified by Gump were variations of seatwork while six of the patterns were variations of the recitation format.

The activity pattern which occupied the most student time was one in which the teacher was not actively in the segment and in which students were working on a variety of academic tasks, attending to their own materials, and proceeding at their own pace. Students spent over 20% of their time in this one activity pattern. The second most dominant segment was the reading circle, occupying 9% of the school day. This format is characterized by the teacher's acting as a recitation leader or director of student action, with students in an interdependent relationship with one another and attending to class events. Pacing is determined externally, with performance occurring in a serial fashion.

Gump also examined the relationship between segment qualities and student involvement. He confirmed the findings of other researchers that students are on-task more during recitations than during seatwork activities. Researchers typically explain this difference in attention as being due to the role of the teacher during these contrasting formats. Gump was able to use his category system to identify seatwork activities in which the teacher was present as well as seatwork segments in which the teacher was not directly involved. He found that the off-task behavior of students in teacher-supervised seatwork was not significantly different from off-task behavior manifested during the seatwork segments that operated when the teacher was busy elsewhere. Apparently, teacher supervision is not the critical difference between seatwork and recitations that corresponds to differences in student attention.

Another segment quality related to student involvement examined by Gump was whether the activity involved the whole class or only a portion of the class. Students were significantly more involved during small-group activities than during large-group activities. Two other characteristics of lessons that have been studied are what Kounin and Gump (1974) have termed the "signal system" of lessons and the pacing of lessons, to be discussed in the following two sections.

The Signal Systems of Lessons

The theory of lessons as signal systems (Kounin & Gump, 1974) maintains that children's actions in a lesson are oriented, prodded, and supported by the external provisions of that lesson. These provisions include the communications of the teacher and the props that go with the lesson. Those provisions which signal the standing pattern of behavior of a lesson are labelled signal systems.

Kounin and Gump (1974) compared four types of lessons: (1) those with a single, continuous source of signal emission (e.g., a teacher's reading to the class or playing a record); (2) lessons with multiple, shifting signal sources (e.g., recitations or discussions, group projects); (3) lessons with a continuous signal system, in which one action and its immediate result provide the impetus and guidance for the next action (e.g., individual construction projects); and (4) lessons with a continuous signal for a single source, in which the actions involved in the lesson produce intense stimuli (e.g., dancing, singing, jumping).

Kounin and Gump (1974) found that the more continuous and unlagging the provisions of a lesson, the greater was the task involvement of the children. The most successful lessons were individual construction lessons. In these lessons, the signal system comes from the effects of one's own behavior exerted on continuously present materials. Kounin and Doyle (1975) discussed the critical features of individual construction lessons by providing the following example:

> the teacher provides each child with scissors, paste, a large sheet of paper, and magazine pages showing pictures of food and instructs each child to make a collage of desserts. After a child begins such an activity, the major and persisting external signals come from the changing conditions of his materials. He selects a picture, but it must be cut from the page; once cut, it requires paste; when paste is applied, it needs to be pressed onto the paper; the pages of pictures signal to select another dessert, and so on. A continuous signal system occurs as one action and its immediate result provide impetus and guidance for the next action. (p. 160)

Lessons with a high degree of continuity and freedom from gaps were moderately successful in involving children. Lessons employing the other two types of signal systems were less successful. Kounin and Gump reasoned that lessons with shifting signal sources were not successful in involving children because of the absence of continuous sequencing and/or because of their dependence upon potentially faltering inputs from other children. On the other hand, lessons with intense stimuli, such as movement or music performance, were vulnerable to high off-task behavior because the props or actions were potentially intrusive.

The Pacing of Lessons

The variable of lesson pacing has been examined by Stodolsky (1979, 1981), Gump (1967, 1969), and Grannis (1978). This variable concerns the person who is controlling the rate of work in a lesson. Stodolsky (Note 6) examined the relative use of four kinds of pacing arrangements: pacing controlled by the teacher, by the student, by the teacher and students together in a joint endeavor, and by students with one another. She found that in mathematics, 47% of the lessons were paced by the teacher, 40% were paced by the student, and 10% were paced cooperatively by groups of students. In social studies, 41% of the lessons were paced by students working together, 37% by the teacher, and 16% by students alone. These distributions of pacing for the two subject areas are, then, significantly different. Stodolsky further found that cooperatively paced lessons tended to last longer than those paced by the teacher and somewhat longer than those paced by students alone.

Gump (1967, 1969) distinguished between two kinds of pacing: pacing accomplished by sources external to the child and pacing accomplished by the child. He found that students were more involved in externally paced segments (such as recitations but also including other types of lessons, such as singing in unison, doing exercises along with a record, listening to a teacher read a story) than in segments in which students controlled the pace of the lesson (such as seatwork).

Grannis (1978) examined the relationships among pacing, the consistency of other variables with pacing, and student involvement in a sample of second-grade Follow Through classrooms. He coded many features of the lesson but paid particular attention to four setting features: pacing, interaction between children, the nature of feedback available to children, and the degree to which children had options regarding which activity they pursued. Grannis developed the idea of congruence or "fit" among these aspects of the lesson structure. Lessons with maximum congruence are those in which all four setting features have the same locus of control (i.e., teacher, student, or joint control). Grannis argued that when some aspects of the setting are controlled by the teacher and other aspects are controlled by the students, or jointly by the students and the teacher, maximum congruence does not exist and tension is created regarding who is truly in control. The core idea he examined was that children are more involved in learning when the four setting features are congruent in terms of locus of control than when the features are not congruent. Support for this hypothesis was found: Children in the study were more involved in the highly congruent lessons than in the less congruent lessons. Further support for Grannis' congruency hypothesis comes from a study conducted by Stodolsky (1979). She found that, particularly in mathematics classes but also to a lesser extent in social studies classes, fifth-grade children were more involved in lessons that were highly congruent than they were in less congruent lessons.

The studies conducted by Grannis and Stodolsky were both correlational, and thus causality cannot be inferred. Examples of experimental analyses consistent with Grannis' hypothesis, although not designed as tests of the hypothesis, are provided by the work of Doke and Risley

(1972), who examined the effects of different combinations of teacher or learner initiation of activity with plentifulness or scarcity of learning materials; by Fisher, Blackwell, Garcia, and Greene (1974), who studied the effects of allowing students to choose the difficulty of arithmetic problems in a computer-assisted instruction format; and by Wang (1974-75), who examined the effects of learner's choosing the time of day prescribed tasks would be completed.

The Structure of the School Day

Thus far, we have examined the amount of time students and teachers spend in school, how this time is allocated to various activities, and some of the most common lesson formats used by teachers. As part of the material already discussed, several aspects of the structural organization of the school day have been alluded to but not yet discussed. For example, the finding has been mentioned that some activities are organized for the whole class while others are engaged in by only a subset of students. What are the other students doing during this time? A related point concerns the finding that teachers are actively engaged in some activities but are not even a part of other activities. Where are teachers when they are not a part of the activity in question? Another finding not expanded on earlier is that approximately 20% of the school day is spent in transitions or in other procedural activities. Why is so much time spent this way, and how can teachers manage their time most effectively? Answers to these questions can be provided in part by examining the structure of the school day.

Far more attention has been given to the specific activities teachers use to fill school time than has been given to how teachers structure the school day. Yet the structure of the school day is important. School time is always divided into various "blocks." Never is the school day left undifferentiated. Sometimes it is not the teacher who structures the time but the building principal or a school superintendent. Local or state regulations may also play a part. This is the case, for instance, in junior and senior high schools. In junior high schools, senior high schools, and institutions of higher education, the minimum number and maximum duration of segments are typically determined by administrators. Regardless of what the teacher will be teaching on a particular day, the same amount of time is arbitrarily allocated to the activity. While teachers at these levels might be free to subdivide the given time block into smaller units, they are not able to extend learning activities into a span of time longer than the allocated time block unless special arrangements between teachers are made. With cooperation between teachers, two or more of the specified time blocks could be combined into a larger unit, but such special arrangements are probably rare. Anderson and Brinlee (1982) recently observed a sample of 18 seventh-grade mathematics classes taught by six different teachers and found that often one segment occupied the entire preset time period. Teachers in this study never combined two class periods into one segment.

At the elementary level, the school day is not generally divided into equal-size periods. However, even at this level, the structure of the school day is preset for some teachers. For instance, physical education, music, and other elementary school "specialists" are told into which blocks of time their day will be divided. Again, these constraints apply more to the maximum duration of each time block rather than to the minimum duration. Teachers are still free to subdivide this block of time into smaller units.

For most elementary school teachers, the structure of the greater part of the school day is under their control. However, for some activities the teacher must act (or might choose to act) cooperatively with other adults in the scheduling of activities. This would be the case in team-teaching situations, as well as in open-plan schools. Obviously, teachers who are part of a teaching team would have to work together when planning the school day. In open-plan schools, even if teachers are not part of a team, there is still a need for cooperation in the scheduling of activities so that the beginning and ending of activities (particularly those involving movement), as well as "quiet" and "noisy" activities, are synchronized between teaching areas (Gump & Ross, 1979).

Certain constraints affect how all teachers schedule the use of their time (Yinger, 1977). For example, in most schools it is not up to the classroom teacher to decide when to schedule lunch or when to begin or end the school day. The beginning and ending times of certain other activities, as well as the duration of activities, are also sometimes determined for rather than by the teacher. Common examples of such activities include the teacher's planning time, school-wide assemblies, and the morning pledge.

Still another constraint on teachers' scheduling of the school day are regulations regarding the frequency and duration of various academic curricula. Little is known about how these constraints affect the teacher's scheduling of activities or about differences among teachers in the scheduling of the school day. However, ecological research on the structure of behavior suggests that systematic differences among groups of teachers probably exist. To date, the structures of behavior episodes and activity segments have been described.

Behavior Episodes

A behavior episode, fully described by Barker and Wright (1955) and by Wright (1967), is the smallest ecological unit of an individual's stream of behavior. The basic criterion used to identify episodes is that they have a constancy in the direction of behavior exhibited throughout the unit. Basic guidelines for determining constancy of direction are the individual's present physical position, a sensitivity to any changes that may occur in one's position, and assessment of whether the behavior is consistent with and contributing to what appears to be the goal of the episode. Two other defining characteristics of a behavior episode are that it occurs within the normal behavioral perspective and that the whole episode has greater potency than any of its parts. These three criteria have been used reliably to identify episodes in the stream of behavior of normal children, physically disabled children, children in a community in the United States, children in a community in England, and teachers. Only the work of Scott (1977), who looked at the behavior episodes of teachers, will be reviewed here.

Scott (1977) examined the episode structure of a small sample of "effective" and "ineffective" preschool teachers during two common preschool behavior settings: morning greeting and large-group instruction. The behavior of effective teachers could be differentiated from that of ineffective ones in both settings by at least three factors: (1) effective teachers had fewer episodes that, reciprocally, lasted a longer period of time (i.e., effective teachers were more able to sustain their behavior in a continuous flow without interruption or change in direction than were less effective teachers), (2) effective teachers showed more episodes ending in attainment of their goals than did ineffective ones, and (3) effective teachers showed more positive and less negative emotional feeling tone in their contacts with children.

Several differences appeared in teachers' behavior as a function of one particular behavior setting; there were many more differences between groups of teachers in morning greeting than in large-group activity. With respect to structure, during morning greeting effective teachers showed more episodes lasting at least a minute and had more "enclosing episodes" than did ineffective teachers. An enclosing episode is one such that part of it overlaps with the whole of another. For example, a teacher who handled overlapping episodes during morning greeting might briefly speak to each child as the child entered the room and simultaneously arrange the materials that would be needed for morning seatwork. In contrast, ineffective teachers showed more isolated, single episodes than did effective teachers. This pattern of nonoverlapping episodes is similar to the structure of behavior that Barker and Wright (1955) found to be characteristic of younger rather than older children. Teacher effectiveness seems to involve the ability to sustain a major ongoing behavior unit in a continuous stream while including other minor parts of the ongoing unit so that they all flow together as an organized whole.

Two other differences appeared during morning greeting that were somewhat weaker, but still interesting. Effective teachers showed a higher level of self-direction than did ineffective teachers. They were more in control of the situation as evidenced by their initiating or terminating more of their own behavior episodes than were initiated or terminated by an outside agent. Further, effective teachers used more mechanisms to implement their behavior episodes than did ineffective teachers. Three mechanisms were coded: verbal, signal, and physical contact. While ineffective teachers frequently restricted their contacts with children to verbal ones, effective teachers almost always used two, and often all three, mechanisms in one episode. Effective teachers apparently supplied the child with more cues for behavior than did ineffective teachers.

Only one difference appeared as a function of the large-group activity. During this behavior setting, effective teachers had more episodes concerning the group as a whole, whereas ineffective teachers had more episodes concerning individuals or small groups.

Activity Segments

An activity segment is an eco-behavioral unit which has been described and used by Gump in his studies of elementary school classes (Gump, 1967, 1969, 1974). As an eco-behavioral unit, the activity segment captures the physical, temporal, and behavioral aspects of classroom life. Gump's conceptualization of the activity segment is developed from Barker's work on the unit of the behavior setting (Barker, 1968; Barker & Wright, 1955).

The major difference between the behavior setting and the activity segment is the size of the unit. Activity segments are much smaller units than behavior settings. The methods that have been developed to determine the boundaries of behavior settings and activity segments have been described respectively by Barker (1968) and Gump (1967).

Certain characteristics are shared by all activity segments. First, every segment has a concern, which is what the segment is about. When used in the study of school environments, a segment's concern may relate to various academic fields (e.g., arithmetic, reading, science), to artistic matters (e.g., arts and crafts, woodwork, cooking), or to classroom activity maintenance (e.g., attendance, clean-up). Besides its concern, every segment has an activity pattern, or a program defining how the segment operates. Another characteristic of activity segments is that they have physical and temporal boundaries. They occur in a particular location, contain specific behavior objects, and occur during a particular span of time. An important final characteristic of activity segments is that the behavioral aspects of the segment (i.e., the activity pattern) and the physical aspects of the segment are similar in shape. This compatibility between program and milieu has been termed synomorphy by Barker (1968) and has recently been investigated by Gump and Ross (Gump & Ross, 1977, 1979; Ross, 1980; Ross, Note 6).

Synomorphy is an important characteristic of settings, and it has been demonstrated that in instances in which the degree of synomorphy between the behavioral and physical boundaries of a setting is low, modifications occur in the physical milieu and/or in the educational program until a higher degree of synomorphy is achieved (Gump & Ross, 1977, 1979; Ross, 1980, Note 6).

Examples of common segments that occur in elementary schools are the morning flag salute, reading circles, individualized seatwork, and the creation of works of art. Each of these segments calls for a different kind of behavior and a different physical arrangement. To salute the flag, children must be able to rise out of their seats and face the flag, which might be held by the teacher, a child, or might simply be permanently displayed on a hook on the wall. The most appropriate arrangement for a reading circle is one where chairs are arranged so that children can see and interact with one another; in seatwork, teachers generally (although not always) do not want children to interact, so a seating arrangement that does not encourage interaction (e.g., a row-and-column arrangement or a circular arrangement with students facing the outside of the circle) would be appropriate. During the construction of art projects, if materials are to be shared, a physical arrangement in which children are seated together at tables would be called for.

One of the most important findings about the structure of both activity segments and behavior episodes is that they do not always occur sequentially, but instead two or sometimes even more segments or episodes completely or partially overlap one another. In an initial study of the structure of the school day, Gump (1967) found that during 35% of the school day, teachers managed overlapping segments. The maximum number of overlapping segments operating at any time in the six third-grade classes he observed was two; however, one third-grade class he observed during a pilot investigation often had three, and sometimes four, segments operating at the same time.

In the study of classroom activity segments conducted by Gump (1967), there was little variability in the structure of segments among the teachers or for the same teacher on different days. As Gump has stated, "It may be that the general demands of the prescribed curriculum interacting with the limited time available in one day hold the number of major segments to a relatively constant number" (p. 39). However, because Gump's sample was restricted to one grade level and one day of the week, occurring only in schools with both traditional educational programs and traditional physical designs, we do not know whether the segment structure would be similar in other kinds of classes. Various factors could influence the way teachers structure the school day.

In a recent study, Kirley (1981) examined the number of mathematics activity segments fifth-grade students were involved in each day. She found that students averaged just over two instructional segments devoted to mathematics per day and that only 13% of class days had more than three mathematics segments. A valuable contribution of Kirley's work is the initial attempt to identify intervening variables that might explain differences in structure between classes. She found that the length of the class period was positively correlated with the mean number of mathematics segments per day. Kirley also examined the relationship between the mean number of mathematics segments and student attention. The data indicated that attention was not related to the mean number of segments. However, attention was related to the interaction of mean number of segments and length of the mathematics period. Kirley found that when class periods were relatively long, students who experienced more segments attended better than students who experienced fewer segments. However, when class periods were relatively short, an increase in the number of segments experienced was associated with relatively low attention. Kirley concluded that greater variety enhances attention only if there is sufficient time in the class period to allow for more segments. If there is not, variety detracts from attention. In longer periods, three or more segments per period produces a modest increase in attention. Unfortunately, Kirley limited her examination to fifth-grade classes and focused only on mathematics instruction. Further, data were not presented to indicate the extent to which teachers employed overlapping segments.

When simultaneous segments operate, the teacher has created a relatively complex structure which must then be coordinated and supervised. What are the conditions that lead teachers to create overlapping segments and how successful are teachers in managing these segments once they are created? Researchers have not investigated such questions, and even in books written for teachers little attention is given to these crucial issues.

Beginning teachers, who are probably inexperienced with the management of overlapping segments, might prefer to avoid such situations during their first few months of teaching. Unfortunately, this often is not a choice they are permitted. As Gump's (1967) data indicate, overlapping segments are common in elementary school classrooms. Curriculum guides in areas such as reading and sometimes mathematics are particularly likely to suggest the use of small-group activities. When a subsample of the class engages in a small-group activity, the rest of the students obviously must also be given an activity to do during that period of time. If the class is self-contained, having only one teacher and no aides, it is the responsibility of that one teacher to manage both segments. Information is needed on what kinds of segments can best operate simultaneously, as well as on how teachers can best create, manage, and end segments.

In research relating to this management problem, Doyle (1977) conducted a study in which he observed 58 student teachers, each for a full year, as they learned the "classroom environment." Doyle's study revealed that the most salient features of the classroom for student teachers were multidimensionality, simultaneity, and unpredictability. Doyle explained that classrooms are multidimensional in that they serve a variety of purposes, not all of which are compatible. Classrooms are simultaneous in that significant events often occur at the same time rather than following each other in a serial fashion. Unpredictability refers to the degree to which the complexity of ebb and flow in classroom events prevents the teacher from accurately predicting the outcome of a planned activity. In later writings, Doyle expanded this list of classroom features to include immediacy and history (Doyle, 1979), as well as "publicness" (Doyle, 1980). Classroom structures that involve two or more segments operating simultaneously increase the multidimensionality and simultaneity that are already a natural part of the classroom situation.

Doyle (1977) found that teachers adapt to these demands by trying to reduce the complexity and unpredictability of the classroom environment, specifying five teaching "skills" that were successful in reducing environmental complexity for beginning teachers: chunking (the ability to group discrete events into larger units), timing (the ability to monitor and control the duration of events), overlap (the ability to handle two or more events at once), differentiation (the ability to discriminate among units in terms of their immediate and long-term significance), and rapid judgment (the ability to interpret events with a minimum of delay).

Beginning teachers often try to reduce complexity by localizing attention to one region of the classroom and by being engrossed in one activity at a time. Doyle (1977) found that such strategies generally are not successful. Studies of students indicate that they also try to reduce classroom complexity (e.g., Davis & McKnight, 1976; Erlwanger, 1975; Mehan, 1974). For example, students make lessons less ambiguous and more predictable by focusing on procedures and by requesting more explict information from teachers at the start of a segment. For both students and their teachers, further investigation of the relationship of activity structure to behavior would prove helpful.

III. MANAGEMENT OF EDUCATIONAL ACTIVITIES

Teacher behavior is, to a large degree, a function of the features of the classroom environment--the sequence of activity segments, the structure of the segments, and the properties of the segment format. Thus, it becomes important to understand how the teacher can influence the environment so that behavior within the interactive setting conforms as closely as possible to the teacher's goals.

Transitions, the phase of an activity during which teachers set up the environment, are one part of the school day during which teachers can have a great influence on the behavior of students. Once the standing pattern of behavior is established, the teacher's and pupils' behaviors are predictable and molded by the demands of the environment in which they are situated. Unfortunately, at present there is little information available to help teachers plan transitions. Numerous books on the subjects of curriculum planning and scheduling of activities include only a sentence or two devoted to the subject of transitions. These comments usually acknowledge the difficulties of managing transitions but offer few solutions to the problem.

Another period of time crucial in determining the eventual behavior of students and teachers is that portion of the day during which teachers plan their future activities. The management of transitions and the planning of educational activities are, then, two of the most critical management tasks faced by teachers.

Management of Transitions

One of the consistent findings of the studies reviewed earlier on the use of time in elementary schools is that much time is spent in noninstructional activities. Several data sources, both in England (Bennett et al., 1980) and in the United States (Borg, 1980; Gump, 1974) indicate that approximately 20% of in-class time (approximately 45 minutes) is typically spent in noninstructional activities. Some noninstructional time is devoted to procedural activities (such as "housecleaning" and "attendance"); these have their own standing patterns of behavior and often last long enough to be considered separate activity segments.

Another category of noninstructional time is the transitional time between activity segments. In school all time cannot be spent on planned activities per se; all activities require some attention to mechanics and logistics. When one lesson ends and another is about to begin, some time is devoted by the teacher and students to dissolving one "environment" and creating a new one. It is during this transitional time that materials get distributed or put away, pupils and teachers move to new locations, instructions for the upcoming task are given, and behavior orientations change.

Findings regarding the amount of time spent in the transitions between segments as opposed to time spent within procedural segments are difficult to compare across studies. Different researchers define time differently, and most do not distinguish between procedural segments and transitions. Estimates of transitional time, as distinct from time spent on procedural activities, are thus problematic.

Gump (1974) argued that one index of operating efficiency might be the percentage of time consumed in noncore, nonsubstance phases. Other researchers (e.g., Bennett et al., 1980) have stated that many teachers would not accept this view, arguing that tasks such as a young child's learning to tie shoe laces after gym are relevant educational activities. Without examining the kinds of behaviors that occur during transition or determining whether any cognitive or social goals held by the teacher are being met during this phase, such arguments cannot be settled. Certainly, children do practice many skills during transitions that they perhaps do not have the opportunity to practice during activity segments. However, this does not mean that these skills are learned better during transitions than they would be during formal lessons, or that new skills could be taught more efficiently in lessons.

During transitions, students spend part of their time simply waiting for signals from the teacher. Jackson (1966) has written eloquently on the many instances during the school day when children are confronted with delay, denial, and interruption. In the elementary school, students often line up for recess, for lunch, and for dismissal, and they frequently have to wait for lines to be straight before they are allowed to move. During individual seatwork they wait for the teacher to come around to their desks to inspect their work. When the whole class is working together, there is waiting for the slower pupil to finish the work that the faster ones have completed, and during discussion there is waiting for fellow students to answer the teacher's queries. When motion pictures or slides are shown, there is usually a delay as the room and the equipment are made ready. Many other school situations necessitate waiting, preparation, clearing away, and movement. Most of these are necessary activities, which unfortunately can be quite time consuming.

Bennett et al. (1980) found that on the average, pupils spent between 4 and 9% of the school day during periods of transition, waiting for signals from the teacher. For example, pupils often waited for teachers to signal the end of activities and to direct them to clear away materials and/or obtain materials for the next activity. When a change of location was required, pupils were often directed to form lines and wait until the last pupil was ready and the teacher signaled to proceed to the next destination. Further waiting also sometimes occurred before children were allowed to enter a different space.

Although movement from one activity to another involves a large portion of the day, and supervisors and trainers of teachers consider the management of transitions to be a critical teaching skill, transition management has not been a central target of empirical educational research. Yet closing of one activity and the initiation of another is an event requiring energy and redirection on the part of both teacher and pupils. In the transition from the old segment to the new, pupils may be without strong behavioral guides. During this transitional time, pupil behavior becomes more individual, and some of this individualism involves behavior divergent from that desired by the teacher.

Much teacher effort goes into these transitional spans. In some classrooms transition periods are chaotic. The teacher must prod, reprimand, referee, and threaten students. Children constantly ask what they are supposed to do, but rarely do it. Disruption is attended to and often gets out of hand. Corroborating this view in a study of third-grade classes, Gump (1969) found that an average of 26% of teachers' verbal acts occurred during transitions and that teachers dealt with more deviant behaviors during transitions than during other periods of the day.

Sloane (1976) discusses the possibility that many teachers strengthen disruptive behavior by finding new activities for children to engage in whenever they get restless. Although the restlessness may cease at that particular moment, in the long run it may increase. The procedure of distracting restless students makes more desirable behaviors contingent on poor work habits--when the students start fooling around, they are rewarded with a new and more exciting activity!

Arlin (1979) also commented on the tendency for student teachers, in the face of adverse reaction from a small group, to shift activities. He found that these "panic transitions" rarely flowed smoothly into a subsequent activity. The teachers were so focused on ending the activity preceding the perceived adverse feedback that they lost sight of what was supposed to happen next.

Maul (1978) has identified five particularly troublesome transitions common in preschool programs. First is the transitional period during which children are arriving at school. This period the researcher feels is troublesome because children are anxious about being separated from their parents. A second troublesome transition occurs during trips to the bathroom. This transition Maul feels is mundane for both children and adults. In addition, children are typically unoccupied as they wait for their turn to use the bathroom facilities. A third problematic transition occurs before recess when the room is being cleaned. Maul explains that during this time children are excited about going outside and thus resist cleaning the room. The fourth problematic transition is at the start of naptime, with children typically being active and resisting settling down for their nap. Finally, there is the period of time during which children are waking up from their naps. Maul explains that children wake up at different times and in different moods, thus resulting in a difficult transition.

In describing the problems involved in these five transitional periods, Maul is concerned with characteristics of the child (active, fearful, moody, etc.). An alternative place to look for explanations is the school environment. During transitions, there are typically competing activities that the child must resist becoming engaged in, a great deal of movement and distraction, and a variety of conversations and social interactions occurring. In addition, the teacher might temporarily leave the room to run errands or might be busy in the room perparing for the next activity or interacting with individual children.

Many different kinds of transitions occur in the typical elementary school classroom. Some transitions are much more complex than others, and thus probably take much longer to complete. For example, transitions that involve getting the whole class ready to move to another part of the building (e.g., the gymnasium or music room) are quite different from transitions that occur within the classroom (e.g., changing from a reading to a math lesson). Transitions that involve overlapping activity segments have managerial demands different from transitions between two sequential activity segments.

In addition to being affected by characteristics of the child and the school environment, the amount of time spent in transitions and other procedural or noninstructional activities can also be influenced by variables such as grade level and the "openness" of the educational building and/or program of instruction. Bennett et al. (1980) found that on the average more time was spent in noninstructional activities and transitions in infant schools than in junior schools in England (22.2% and 13% respectively). As in the Beginning Teacher Education Study (BTES), transitions accounted for most of the noninstructional time. The question of whether this difference in time usage was due to developmental differences between younger and older children, or to differences in their school programs, was not analyzed or discussed.

Gump (1974) documented the amount of time spent in transition in two open and two self-contained schools. He found that the extent of nonsubstance time appeared to be related to major site changes. Open schools encouraged mobility of students--that is, frequent regrouping at new sites. When materials and pupils were in various locations, management of transitions was more complex and took more time than when all materials were centrally located and when pupils assigned to a teacher remained in the same place throughout the day. When a number of teachers and pupils were using a limited number of sites in sequence, rather tight schedules had to be established. An ongoing activity in one area had to be promptly terminated at the end of the scheduled time, or the next user group would be kept waiting. Teachers in self-contained classrooms have more elasticity in their schedules than teachers in open-plan buildings and more freedom to control the start of the transitional phase. In the open-plan schools, children were often kept waiting to begin activities because teachers were busy closing out a previous one or dealing with a special problem. When a teacher and a group stay in one locale, the teacher can both handle special problems and begin the next segment.

Reducing the Length of Transitions

The studies just reviewed indicate that more time is spent in transition among younger as compared with older students, and in open as compared with traditional buildings. Obviously, once assigned to a particular grade level and building, teachers have little control over these factors during the remainder of the school year. However, certain organizational strategies and management techniques might help teachers reduce the amount of time they spend involved in transitions.

Gump and Good (1976) suggested two ways that the length of transitions could be reduced. First, they suggested designing "anchor places," or collections of required materials, very near the teaching areas. If needed materials and resources are distant from locations at which teachers begin segment action, increased time to start activities must be expected. Second, nonsubstance time might be approached by program manipulation. With fewer major site changes and longer periods in one place, the amount of starter time could be reduced. Unfortunately, neither of these possibilities has been examined experimentally.

In presenting a summary of the BTES data, Borg (1980) noted that there was little variability among teachers in the amount of time spent in noninstructional activities. He used this finding to argue that it would thus be quite difficult for teachers to modify the amount of time spent this way. However, examination of the data collected in this study indicates that most of the noninstructional time (35 of the 45 minutes spent in noninstructional activities) was devoted to travel to and from lunch and recess, and to the transitions between activities. Thus, it would seem that if structural changes were made in the organization of the school day or school week, the number of transitions could be decreased, and the amount of time spent in transitions could similarly be diminished. Specifically, teachers can vary the number of segments they operate each day. As the length of each segment increases and the total number of segments decreases, the number of transitions would correspondingly decrease.

Researchers who have observed classes in operation have reported that in elementary schools there are typically over 30 segments a day (Gump, 1967; Kounin, 1970). Combining two closely related segments into one larger segment can not only decrease the number of transitions that the teacher will have to manage, but can in some situations have a positive effect on student achievement. Green (1977) conducted a study in which 11 teachers read the same story to groups of children. All teachers also questioned the children about the story. Some teachers accomplished these two activities in two clearly separate periods of time while other teachers integrated these activities by interspersing questions within the story. Green found that children who heard the stories interspersed with questions recalled more of the story than did children who had teachers who waited until the end of the story to ask comprehension questions. Stephenson (1979) later replicated this study and achieved the same results.

A radical structural alteration that could result in a change in the utilization of school time would be a 4-day, instead of a 5-day, school week, with a corresponding increase in the length of each school day. By making this change, the amount of time spent each week "settling in" to school, traveling to and from lunch, and getting ready to leave school could be decreased. In New Mexico, a number of rural school districts have lengthened the school day and have switched to a 4-day school week. According to a report in Newsweek, this change resulted in a savings of 20% in fuel bills, a decrease in teacher absences, a reduction in discipline problems, and "improved the educational atmosphere" ("Going to Class," 1979).

The length of a transition could also be affected by the formats of the activity segments that surround the transition. Krantz (1974) examined the effects of activity sequence on classroom behavior and found that transition times preceded by vigorous activities were longer and more disruptive than those preceded by more passive activities. These results suggest that an activity that prohibits children from being physically mobile should not be immediately preceded by a session that permits or encourages boisterousness or large motor behavior. These findings contradict educational folklore that children will be more attentive and less disruptive if the daily activity schedule is arranged so that active periods alternate with periods of quiet (see also Becker, Engelmann, & Thomas, 1971; Faust, 1977; Hamblin, Mukerji, & Yonemura, 1967).

Reducing the Chaos of Transitions

Many of the books used in the preservice training of teachers warn student teachers that transitions can often be chaotic if not properly managed. Most of the books available on classroom discipline and management discuss ways to deal with inappropriate student behavior once it occurs. That is, they provide teachers with tools for reacting to problem situations. However, researchers have found that teachers who are effective managers are those who use preactive techniques (i.e., they manage the classroom so that few instances of inappropriate behavior ever arise [Kounin, 1970]). Various management techniques have been suggested for avoiding chaos during transitions. There appear to be five principles of transition management that can be derived from the limited research available:

Advance preparation. Educational folklore advises teachers to warn students of upcoming transitions. For example, Hendrick (1975) suggests that, in order to take the abruptness out of the situation and to make compliance with routines easier, teachers warn children in advance of a change in activity. Giving verbal directions to facilitate transitions is an idea also subscribed to by Hildebrand (1975), who has provided teachers with suggestions for effective verbal guidance. Schultz and Florio (1979) spent a year observing a teacher and students in a combination kindergarten/first-grade classroom. They found that at the beginning of the school year, the teacher always announced when transitions were approaching. However, similar announcements were not made later in the school year. Apparently, by the time the investigators conducted a second observation, the students no longer needed to be reminded that a transition would occur in 5 or 10 minutes.

The assumed advantage of preparing children for upcoming transitions has gained some empirical support from a correlation study recently completed by Arlin (1979). In order to identify characteristics of smooth and disruptive transitions, Arlin observed 50 student teachers, each for an hour. He found that one characteristic of smooth transitions was that the teacher prepared the children in advance that a transition was approaching. Further, the teacher brought the momentum of the previous activity to a halt before commencing the transition. Arlin anecdotally noted that the need to bring previous momentum to a halt for a successful transition was particularly noticeable after physically stimulating activities such as recess or gym.

Advance preparation should be especially important when students are involved in self-paced activities. When the pacing for the activity is external to the student (i.e., teacher-paced or mechanically paced), students do not have control over how fast they complete the activity, and so advance preparation should not alter their behavior. However, advance preparation should affect student behavior during student-paced activities because during those activities knowledge of how much longer they have to work could affect when students begin to "wrap up" their activity.

Clarity of boundaries. Closely related to the idea of advance preparation is the issue of establishing clear beginning and ending points for each segment. Arlin (1979) found that sometimes

> the student teacher appeared not to be aware of the ending of a period, and consequently did not prepare for the transitions. They did not "wrap-up" the lesson beforehand. The lesson was still continuing when the bell would ring. Not having reached any closure, the teacher, with some degree of desperation, would say something like "Okay, you can go," and pupils would charge out of the room, often knocking each other over. (Sometimes, pupils did not even wait for the signal from the teacher.) The teacher might then remember an announcement and interject to the dispersing mob, "Don't forget to bring back money for the trip!" (p. 50)

One of the teacher's major functions is to communicate to the students what context they are in and to signal when one segment is about to end and another is to begin. The teacher must communicate that something new is happening so that students know what is expected of them. The behavior of teachers during transitions appears to be different from their behavior during segments: In transition times, teachers must pull individuals out of one structure and get them into another.

During teacher-paced activities, how the teacher "wraps-up" the activity should affect the smoothness of the transition. Arlin (1979) found that transitions accompanied by minimal pupil disruption were frequently those in which the teacher brought the momentum of a previous activity to a complete halt before commencing a new activity. Teachers would announce the transition and allow ample "wait time" to permit follow-through.

Use of routines. While the word "routine" often has a negative connotation, recent research suggests that the establishment of routines is characteristic of effective teachers. Routines appear to be important in helping teachers plan (Yinger, 1977, 1979) and in helping students engage in appropriate behavior during lessons. Routines seem to have their strongest impact during transitions, however.

Arlin (1979) reported that in the classes he observed, the children knew clearly what was expected of them and that once the pattern was established at the beginning of the year, the teacher needed only occasional recourse to an explicit signal system. Van Ness (Note 7) similarly found that many transitions were accomplished by students without explicit directions from the teacher.

When some teachers establish routines, they remain a central part of the signal system. Thus, problems due to lagging signals or accidental modification of the standard signals can occur. Shultz and Florio (1979) studied the transitions in one kindergarten/first-grade class. A detailed microanalysis of videotapes of the teacher's behavior during transitions revealed that she used a specific series of verbal and nonverbal behaviors and moved to particular parts of the room during the transitions. On days when the teacher deviated from her usual sequence, the students did not clear the room in a way statisfactory to her.

Routines, just like any other kind of behavior, must be taught if children are expected to behave in accordance with the desires of the teacher. When the routine or standing pattern of behavior is learned, the signals for the activity become internal. Thus, the children are no longer reliant on the teacher for signals, and there are fewer opportunities for signal lags to occur.

Beginning and ending routines. One of the undesirable results of poorly planned transitions is that some children must wait while the teacher distributes or collects assignments from others. Shultz and Florio (1979) distinguished between single-focused and multi-focused activities, arguing that students would commonly finish their activity at different rates in multi-focused activities and seatwork. Students would finish their work at different times in such activities because teachers generally assign a number of pages to be completed rather than an amount of time to be spent working on the activity. In single-focused teacher-directed segments, in which everyone is kept working at the same rate, this situation would not pose a problem.

On the other hand, children are more independently able to begin their lesson in seatwork than in recitation. In seatwork, each child can begin as soon as he or she obtains the assignment and the necessary materials. Before a recitation can begin, however, the child must wait for the teacher to initiate activity, and the teacher usually waits until all children, or at least a majority of the class, seem "ready." How transitions are handled would therefore depend on the signal systems and pacing of beginning and ending activity segments. Routines that take the type of activity into consideration are thus required.

Movement management. During many transitions, children and/or the teacher are required to move from one location to another. Children have been directed to move from one activity within the room to another in different ways. Montessori classrooms stress moving individually and freely from one activity to the next (Orem, 1966; Parker & Day, 1972).

Other educational programs require that children move as a group from one activity to the next (Bereiter & Englemann, 1966; Parker & Day, 1972).

The difficulties associated with moving children from activity to activity and the issue of whether to move them individually or as a group have been investigated by LeLaurin and Risley (1972). They compared two typical staffing procedures used in day care centers to move children through daily transitions. In the "man-to-man" schedule, as each child finished a task he or she moved on to a new activity. The teachers supervised particular groups of children, providing materials and individual attention immediately. In the "zone" schedule, the children were kept together in each activity so the first child done had to wait for the last to finish. Thus, teachers were assigned to a particular area or "zone" and assumed responsibility for the children passing through it. All the children faced the new activity at the same time, creating a waiting period that was difficult for teacher and children. LeLaurin and Risley (1972) demonstrated that when the teacher was assigned to an area (zone schedule) rather than to a group of children (man-to-man schedule), transitions in a day care program from lunchtime to toileting and toileting to naptime were shortened.

Several studies have examined the effects of alterations in teachers' procedures for taking preschool children to the bathroom. Wallace, Hatfield, Goetz, and Etzel (1976) compared the amount of time it took children to go to the bathroom when they were required to line up before leaving the room to the time expended in a procedure utilizing instructions to hurry and praise contingent on speed. The results indicated that the amount of time it took the children to go to the bathroom was longer when they were required to line up than when they were told to hurry and praised for obeying the teacher's instructions. Yet in most preschool and elementary schools, teachers still insist on having children form lines before leaving the classroom, probably because of the belief that this will reduce the amount of disruptive, inappropriate behavior.

Maul (1978) conducted two experiments during bathroom transition periods in a preschool class. Children went to the bathroom two times during the morning, at 9:30 and at 11:30. The first experiment investigated the effects of taking half the children in the class to the bathroom at a time versus taking the whole class to the bathroom as a group. The results of this study indicated that fewer disruptions were caused by children during the bathroom transition when they were taken in half groups as opposed to total groups. With regard to the investment of time, there was little difference between these two conditions. Across conditions, transitions lasted between 9 and 20 minutes, with considerable overlap between conditions. Maul used these data to argue that the solution to the problem of excessive disruptions during transitions is to take children in half groups. However, doing so necessitates a teacher's performing a routine twice a morning. Also, since this procedure adds two transitions to the preschool morning, the transition problem seems to be aggravated, not diminished.

In Maul's second experiment, an attempt was made to reduce the number of disruptions in the total-group condition. An activity directed by the teacher was introduced for the children to participate in while waiting for their turn to use the toilet. Maul found that disruptions were greatly reduced when children were engaged in a teacher-directed activity while waiting for their turn to use the bathroom. Time spent in the bathroom transition did not change as a function of whether or not there was an activity for the children to participate in while they waited. Taken together, the findings from Maul's two experiments suggest that, for decreasing disruptions, reducing the number of children is not as effective as introducing an activity for the children to engage in while they wait their turn.

While Maul called her experiments investigations of "transition time," in actuality they were studies of the "bathroom time segment" and not the transition. Data were collected from the time the class left the room until they returned, not in the transition out of the prior activity and into the subsequent one. Maul's estimates of transition time thus underrepresent the amount of time devoted to this activity. Even so, she found that across conditions in this classroom trips to the bathroom during the morning session lasted between 18 and 33 minutes each day. This result is a clear effect of institutionalization on the lives of preschoolers. Certainly, children of equivalent age spending the morning at home or in the home of a neighbor or relative would not spend this much time going to the bathroom!

To various extents, movement occurs in schools throughout the day. At least three types of movement occur: within the room, out of the room, and into the room. Each type of movement may involve only one student, a group of students, or the entire class. Further, when moving out of or into a room, the room might be the children's regular classroom or the classroom of another teacher. How teachers manage movement probably varies depending on which combination of movement types is to occur.

Planning Educational Activities

Teachers are faced with a variety of decisions regarding the content and the form of their lessons. The decisions they make influence both their behavior and the behavior of their students. Jackson (1966) was the first educator to distinguish between two kinds of educational decisions. The first kind he called preactive decisions; these include the selection of objectives, content, and teaching methods. Really teaching plans occurring before instruction begins, some preactive decisions influence teaching for the entire school year (or even for several years); others guide behavior for a term, an instructional unit, or for a week; and yet others influence teaching for only a school day, a lesson, or part of a lesson. Jackson termed the second kind of decision that teachers make interactive. These decisions, occurring in reaction to the way the lesson is progressing, take place in the midst of the teaching/learning act and typically affect behavior for only a few minutes.

Jackson (1966) argued 15 years ago that studies of the "empty classroom" and studies sensitive to the different phases of the school year should be conducted. While Jackson's argument has been frequently repeated and cited by many educators and researchers, few researchers have heeded his advice. The limited research concerned with teachers' preactive decision making will be viewed here. Readers interested in summaries of the literature on interactive decision making are referred to Clark and Yinger (1970) and Clark, Snow, and Shavelson (1976).

Jackson's use of the phrase the "empty classroom" concerns the study of what teachers do when they are in the classroom alone without their students. While Jackson's concept is limited to teachers' time in classrooms when children are not present, his concept of the empty classroom may be expanded to include other physical settings in which the teacher also makes instructional decisions that will presumably later affect teaching behavior. Such settings include the school office, the teachers' lounge, the supply room, the teacher's home, the school and public libraries, teacher centers, and any other location which houses resources (whether material or personnel) that teachers can consult in planning their instruction. Little is presently known about the various resources available to teachers or about how and to what extent teachers utilize these various resources.

Laboratory Studies of Preactive Planning

Zahorik (1975) studied the planning of 194 teachers and found that their most frequent planning decision and the one they generally made first was deciding on the content to be taught. Next in importance, but rarely decided first, was the selection of a learning activity. Materials to be used in the lesson were mentioned by half of the teachers. Planning decisions about evaluation, diagnosis, organization of the environment, and instructional strategies were mentioned by less than one-third of the teachers. Rarely did teachers mention objectives.

Similar results were found in more recent laboratory studies. Ben-Peretz (Note 8) presented teachers with a short story and asked them to plan a lesson based on the story. The teachers' plans focused mainly on the subject matter to be taught, pupils' needs, and classroom organization. Teachers' needs and objectives were less frequently included in the plans. Most of the teachers' plans consisted of general statements and did not go into detail about the lesson. Student teachers tended to produce shorter plans than experienced teachers, a finding contrary to the claim made by many educators--for example, Beauchamp (1970)--that the most thorough lesson plans are produced by student teachers. Beauchamp and others have argued that because of the inexperience of student teachers and because their work is being supervised, student teachers are forced to be more careful and thorough than experienced teachers in planning for their teaching.

Peterson, Marx, and Clark (1978) asked teachers to present a social studies lesson to three different groups of junior high school students on 3 different days. Each day before teaching the lesson, the teachers were given a 90-minute planning period and were asked to "think aloud." Most of the teachers' statements during the planning periods focused on the content to be taught. Next in frequency were statements regarding the instructional process. However, over the 3 days, as teachers became more familiar with the content to be taught, the proportion of statements focused on the content systematically decreased while the proportion of statements focused on the instructional process increased. In this study, teachers were told by the researchers the topic they were expected to teach; many teachers were probably initially unfamiliar with the content area. However, in the natural teaching situation, particularly in grade schools, teachers are presumably quite familiar with the content, especially if it is their second year teaching at the same level. Thus, teachers in a real instructional situation would perhaps spend less time on the content and more time deciding on the instructional process. Further, in the study of Peterson and others, the general format for the lesson had already been decided by the researchers: The teacher was assigned eight children to teach during three 50-minute blocks of time. The number of children in the situation and the amount of time available would imply that some teaching strategies would be more appropriate than others.

Another finding from this study was that while much variability existed among teachers in the way they planned, individual teachers were fairly consistent in their planning on the 3 days they were observed. This finding is not surprising since the same lesson was taught on all 3 days. A more interesting issue to address would be whether there is consistency in the way teachers plan across different kinds of lessons. Do some teachers focus on content rather than method regardless of the lesson to be taught? Do other teachers consistently spend proportionally more time devoted to method than they do to content? What would be a better predictor of the way teachers plan--the individual teacher or the kind of lesson?

In a recent study conducted by Clark and Yinger (1979), teachers were asked to make judgments about language arts activities from a set of activity descriptions that varied systematically on five preselected dimensions: student involvement, integration, difficulty, fit between purpose and process, and demand on the teacher. Twenty-five teachers rated 32 situations varying on these five dimensions as to their attractiveness, appropriateness, probability of use, and effectiveness. Individual regression equations for each teacher were computed for each of the four judgments. Large individual differences were found with respect to which factors teachers used in rating the situations and how much variability was accountable for by the factors.

A complementary study conducted by Borko and Cadwell (Note 9) examined teachers' organization and management decisions as a function of qualities of students. Forty-one elementary school teachers read descriptions of hypothetical students who varied systematically on six dimensions: sex, achievement, rule-following behavior, independence, social competence, and self-confidence. The teachers judged each student's academic competence, motivation, and classroom behavior, making a series of descriptions about appropriate classroom organization, management strategies, and long-term educational goals. It was found that teachers' decision policies could not be represented by a single set of common regression weights, nor could data be pooled by utilizing teacher characteristics as moderator variables or by clustering teachers who possessed similar policies. Rather, for each judgment, teachers' decision policies were essentially idiosyncratic. While virtually all the regression models predicting teachers' decisions included at least the one cue most relevant to the decision, they differed in the number of cues used and size of each cue's effect.

One of the problems with the study conducted by Borko and Cadwell (Note 9) is that it asked teachers to make organization and management decisions for individual students. Researchers (e.g., Stern & Shavelson, 1981) have found that teachers do not generally plan for individual students, but for groups. Teachers use various individual characteristics (mostly ability) to group their students, but once grouped, the group and not the individual child becomes the unit for many of the teacher's decisions (Barr, 1974, 1975; Prawat, 1980; Shavelson & Borko, 1979; Russo, Note 10; Stern & Shavelson, 1981).

Clearly, there are individual differences in the way that teachers plan lessons and in the amount of time they devote to planning. Presumably, differences in planning approach and possibly the amount of time spent planning relate to the way teachers behave during lessons and possibly to student achievement. Some kinds of lessons are likely to require more and different kinds of planning than others. Teachers who do not ordinarily spend much time planning might decide not to teach such lessons or might alternatively be ineffective in teaching lessons if planning were either inadequate or inappropriate. Surprisingly, few studies have been conducted on teacher planning, and to date, no researcher has looked at either qualitative or quantitative differences in planning different kinds of lessons.

In interpreting the results of laboratory studies, the time span of the plan studied must be kept in mind. In laboratory studies, teachers are generally asked to plan a lesson or a short sequence of lessons. They are usually told when the lesson will be taught and which students will participate in the lesson. Questions associated with these practices are, How do teachers usually decide on lesson length and how do they sequence activities within a day? Further, in the planning studies discussed thus far, all lessons were to be presented by the teacher to a group of students, presumably in a lecture, recitation, or discussion format. Pertinent to this issue are the questions, How do teachers usually decide on the lesson format and how do they plan for different kinds of lesson formats?

An important aspect of teacher planning that cannot be addressed in laboratory studies is how the planning process and the nature of teachers' plans change over time. In a study conducted by Morine-Dershimer (1979) teachers seldom mentioned the diagnosis of pupil needs, lesson objectives, and seating arrangements in their planning statement. However, when teachers were probed, it became clear that these aspects of lessons were not ignored, but rather were part of the "mental image" or set of expectations for the lesson.

Yinger (1977) theorizes that the nature of the planning process changes as a function of time in the natural history of the school year. Teachers establish routines for how to teach certain kinds of content and thus, when planning lessons on a daily or weekly basis, need only attend to the content to be taught unless the method to be used is to be changed. If the method is not going to be changed, there is little reason for the teacher to spend time addressing that issue. Yinger also found that some decisions teachers make occur early in the year and become routines used on a daily basis; therefore, these need not be addressed explicitly when planning an individual lesson. Yinger's study, particularly his analysis of the use of routines, will be further discussed in the next section.

Naturalistic Studies of Preactive Planning

Laboratory studies and survey reseach indicate that, when students are grouped (Barr, 1974, 1975; Shavelson & Borko, 1979; Russo, Note 10) or treated as a whole class (Prawat, 1980) for instruction, teachers tend to think about the group and not the individual student, making instructional decisions, especially planning decisions, on the basis of the group or whole class.

Once the various groups are formed, teachers are sensitive to the needs and abilities of the different groups in planning instruction. Stern and Shavelson (1981) compared how two teachers planned for a high-ability versus a low-ability reading group and found major differences in the lessons planned and conducted for these contrasting groups. Reading lessons for the low-ability group were highly structured and included highly structured written assignments. During the lesson, the teacher talked during one-half to three-quarters of the lesson. Children in the low-ability group received 20 minutes of daily instruction by the teacher, followed by an assignment that was expected to be completed in the 25 minutes following the reading lesson. In contrast, reading lessons for the high-ability group were less structured, took a variety of forms, used a variety of instructional materials, and varied in their duration on different days. Assignments for this group were also varied on different days, often not highly structured, and frequently extended over several days. During the lessons for the high-ability group, the teacher talked approximately one-fourth of the time. The experiences of the low- and high-ability groups and the skills children gained from these contrasting lesson and assignment formats were thus quite different.

The ways that lessons are planned can also be affected by organizational variables such as whether teachers are part of a team. Clark and Yinger (1979) conducted two naturalistic studies on teacher planning: a field study of teacher planning and plan implementation, and a survey of teacher planning practices. In the field study, four teachers who taught in self-contained classrooms and two teachers who formed a teaching team kept journals and were interviewed regarding the development, implementation, and evaluation of a plan for a 2-week unit on writing. The teachers were given 3 weeks to plan the unit and 2 weeks to enact the plan. During the 2 weeks of presenting the unit, the teachers were observed.

Clark and Yinger distinguished between two kinds of teachers: incremental planners and comprehensive planners. Incremental planners were most concerned with the activity or set of activities needed to get the unit started. After the unit was underway, these teachers responded to the needs and reactions of their students. The comprehensive planners were concerned with the problem-finding and design stages of the psychological process. Their elaborations, investigations, and adaption processes were built on predictions about how students might or might not react to implementation of the plan. Before the plan was actually implemented, these teachers had a rather complete picture of what to anticipate.

All six teachers used a cyclical rather than a linear planning process. Rather than moving from well-specified and carefully stated objectives and proceeding to the design of activities to meet these objectives, teachers more commonly began with a general idea, which they then elaborated.

The purposes of the Clark and Yinger (1979) survey were to describe how elementary school teachers view the process of planning, to enumerate the various kinds of planning, to examine the considerations and constraints that affect planning, and to explore the reasons that teachers plan. Analysis of questionnaire responses from a sample of 78 elementary school teachers indicated that

> Learning objectives are seldom the starting point for planning. Teachers plan around their students and around activities.
>
> Teachers tend to limit their search to resources that are immediately available.
>
> Most of teacher planning is for reading, followed by math, social studies, and science.
>
> Teacher planning is more explicit and involves a longer lead time in team-teaching situations than in self-contained classrooms.
>
> The most common form of written plans is an outline or list of topics. Many plans are done mentally.
>
> Plans provide psychological benefits for teachers. They provide direction, security, confidence. (p. 14)

Yinger (1977) conducted a detailed case study of the processes involved in one elementary (first/second-grade) teacher's planning decisions during a 5-month period of instruction. Yinger's work extended the earlier work of Gump (1967), who had found activity segments to be the basic structural unit of the classroom environment. Yinger's study indicated not only that activity segments were important in understanding the *operation* of the classroom environment, but also that teachers *planned* their instruction in terms of the arrangement of activity segments (which Yinger called "activities"). Seven features of instructional activities were identified: structure and sequence, acceptable student behavior, location, participants, duration, content and materials, and instructional moves. These features were presented as important considerations in planning decisions.

A second major aspect of planning and activity management that emerged in this study was the teacher's use of routines. Yinger argued that for the teacher he studied, routines played such a major role in classroom organization, and in thinking and planning for instruction, that her planning could be characterized as decision making about the selection, organization, and sequencing of routines. Yinger identified four types of routines used by the teacher: (1) activity routines, (2) instructional routines, (3) management routines, and (4) executive routines.

Activity routines were used by the teacher in order to standardize the seven features of instructional activities. Yinger called activities with three or fewer set features "nonroutine" and referred to activities with five, six, or seven set features as "routine." Routinized activities that were not completely set (i.e., had only five or six set features) most commonly had content and materials or content, materials, and structure left open. Thus, when planning routinized activities, the teacher typically had to decide only on the content of the lesson and materials (or the pages to be covered if a textbook or workbook was used). Content was not the focus of her routinization, rather, she considered things such as participants, sequence, duration of activities, and acceptable student behavior. Because of the routinization of activities, more time was available for deciding on content and for developing creative ways to present it. Several authors have mentioned the importance of teaching classroom routines as carefully and as deliberately as anything else a teacher would convey to his or her pupils (e.g., Chasnoff, 1970).

Yinger found that much of the classroom time in the fall was devoted to teaching students the structure and sequence of activities and acceptable student behavior in each setting. Location of and participants in activities were easily learned and often were changed. Features such as duration, content and materials, and instructional moves were the teacher's responsibility, and the success of an activity was not dependent on the students' awareness or understanding of them. By winter term most of this teacher's activities (86%) were routinized and required little planning and little time in set-up and management.

Most planning time during winter and spring terms was taken up by planning for activities that were not routinized (infrequent activities and science, social studies, and mathematics units). In planning these units, the teacher usually had to make decisions about most of the activity components. Units in science, social studies, and mathematics were not routinized by the teacher because they were used to teach content to meet objectives set by the district, and published materials generally were not available. While the math units were sometimes planned for students on the basis of ability groups, science and social studies units were generally whole-class, group activities. Although not specified by Yinger, most probably these three units included lectures, discussions, or recitations led by the teacher.

An interesting finding from a study conducted by Stodolsky (1979) was that recitations occurred proportionately more frequently in schools that had students who were of predominately lower socioeconomic status

(SES) than they did in schools with mostly higher SES students. This pattern held for both social studies and mathematics but was especially marked in social studies. Stodolsky hypothesized that the prevalence of recitations in less affluent districts could result from contraints imposed on the teacher due to a lack of curricular materials. Yinger (1977) found that when curricular units were planned because materials were not available, the teacher spent more time on planning, was not able to routinize the activity as easily, used a complex lesson format (defined as one in which the teacher assumed more than one instructional role), and spent more time in the "set up" phase of the activity. If the findings of both Stodolsky and Yinger generalize to larger samples of teachers, then it might mean that teachers in lower SES schools are faced with a much more difficult job than teachers in higher SES schools in the planning, as well as the instructional, phase of activities.

Instructional routines are methods and procedures established by the teacher to carry out specific instructional moves. A large repertoire of instructional moves (such as giving instructions, demonstrating, instructing, monitoring, reviewing, and questioning) were established and rarely modifed by the teacher in Yinger's (1977) study. Thus, as the activity was routinized, the teacher's moves and roles were routinized as well.

Some of the instructional routines were identical when used in similar activities. For example, when the teacher monitored the children as they copied information off the board, whether it was in handwriting or spelling, she would walk around the class and check progress. Other instructional routines varied depending on the activity. For example, the instructional routine for giving instructions varied depending on the size of the group. When children were gathered in a large group (regardless of content), the teacher would give instructions by repeating them two or three times and then asking a child to repeat the instructions. When the children were gathered in a small group (again, regardless of content), she would give instructions by saying them only once and then observing each child's work to determine whether the instructions were understood.

Management routines are procedures for controlling and coordinating classroom organization and behavior not associated with specific activities (e.g., transition between activities, passing out or collecting materials, leaving the room, cleaning up the room, starting school in the morning or after lunch, grading procedures, the storage of materials, the assignment of student jobs). Management routines have two components--procedures and participants. The procedures specify what is to be accomplished, the steps and sequence in which it is to be done, and sometimes the time and location. Participants specify the individuals or groups to be involved in the procedure.

Executive planning routines are "meta-routines." These are systems of established thought patterns set off by specific planning tasks. Yinger (1977) identified five levels of teacher planning: yearly planning, term planning, unit planning, weekly planning, and daily planning. Each level of planning had its own executive routine. In other words, the routine for unit planning was different from the routine for daily or weekly planning, although each time this planning was carried out according to an established pattern.

Despite the negative connotations of inflexibility often carried by the word "routine," the findings of Yinger's study suggest that routines can be effectively used in the classroom to improve and simplify both planning and actual teaching. The complexity and unpredictability that characterize the teaching environment impose many demands on the teacher, and it becomes necessary to find methods to decrease the amount of information to be processed at any one time. Yinger argued that when used properly routines can increase teacher flexibility and effectiveness by freeing the teacher's time and energy from many planning and implementation decisions.

Routines can also increase the effectiveness of in-class time by increasing the stability of activities and reducing time lost to interruptions. They can also increase student time-on-task by increasing the predictability of activities and possibly by reducing the student's anxiety about what will happen next and what will be expected.

SUMMARY

At this time, we have relatively little information about "empty classroom" behavior. We know little about how teachers use their formal planning time or how much time teachers spend in school at the beginning and the end of the school day, or how much time they spend at home planning their future lessons and doing tasks related to completed lessons (e.g., grading papers, reflecting on their own teaching performance). At this time, we also know very little about why teachers plan, how teacher planning behavior changes with experience, and how individual difference variables might influence the quantity and style of teacher planning. How such activities affect teachers' performances and children's behavior, learning, and attitudes has also yet to be investigated.

What we do know thus far about planning is mainly that classification and definition of goals and objectives play a relatively minor role in teachers' deliberations (Peter et al., 1978; Taylor, 1970; Zahorik, 1975). The activity, rather than the objective, seems to be the unit of planning.

Once again, it appears that in order to understand what is happening in elementary school classrooms, an understanding of educational activity segments is needed. A large body of educational research looks at education from a more "macro" perspective than does the literature reviewed here. Educational policy and organizational studies, as well as studies examining the effects of an educational philosophy, would be examples of such approaches. In such studies, examinations of what is actually occurring within the individual classroom on a day-to-day basis generally are not conducted. A substantial literature also examines the effects of "micro-level" educational variables. The particular movements that teachers make while teaching and their patterns of verbal interaction are popular targets of such research. As a rule, these studies ignore the educational contexts within which such behaviors occur.

This paper has examined a selective portion of the educational management literature. Relative to the many, many papers available on the management of individual behavior, relatively little information exists on the management of classroom activities. Knowing how to select and schedule classroom activities is potentially a powerful tool for classroom teachers; demonstrated here have been some of the effects that being in a particular activity can have on those within the classroom. Teachers and students generally behave in a manner consistent with the demands of the activity of which they are a part. Thus, it seems critical for educational researchers to work at expanding our knowledge of the impact of classroom activities.

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